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I.—AGGLUTINATION AND ADAPTATION.

II.

THE ROOT *dhē* IN AGGLUTINATIVE GROUPS.—In A. J. P. XV, p. 217 sq., I explained the gerundive in *-en-dae* as made up of an infin.-noun in *-m*+a dat. from *√dhē*,¹ and equated the suffix

¹In the same number of the Journal an explanation of this form was published by Mr. L. Horton-Smith that proceeded on much the same lines. The suffixal *-d-* he ascribed, after some debate, to *√do*, as against *√dhē*, on the ground of the Osc.-Umbr. gerundives in *-n-* || *-nn-*. To this decision he was led by the belief that Aryan *-dh-* must become *f* (<*p*) in these dialects. It is, however, demonstrable, I believe, that Aryan *-ndh-* gave Osc.-Umbr. *-np->-nd->-nn-* || *-n-*. I take it that Umbr. *enom* || *ennom* 'then' is kindred with Lat. *in-de*, Grk. *ἐν-θεν*, and represents a primitive **en-dhom*, with suffix nearly parallel to that in the Lat. preposition *en-do* || *in-du*. Comparable is also *quan-do*. Another form of similar make-up is the form *pone* || *ponne* (<**gom-dhe*) 'cum,' represented in Latin by *un-de*, with loss of *q*° as in *ut*, *ubi*, etc. (cf. the author in Class. Rev. VIII, p. 447, and Part I, p. 417). Other material can also be explained on the basis of this law (cf. von Planta, Gram. d. osk.-umbr. Spr., p. 468), if we assume that *-nd-* was estopped in its passage to *-nn-* in certain consonantal environments. Against this law Osc. *anafriss* may be urged, but as to this word we cannot be sure of its meaning (cf. Bücheler, Rhein. Mus. XXXVII 644), and its *-fr-* can be ascribed to *-bhr-* or to *-sr-* (von Planta, l. c., p. 455). I remark that in any case *-np-* doubtless had a different phonetic treatment from intervocalic *-np-*. The passage of *-sr-* into *-pr-*, thence *-fr-*, certain for Latin and probable for Italic (von Planta, l. c., p. 476), warrants us in believing that *-pr-* from any source was not liable to change. If, however, these comparisons are unsatisfactory to anybody, I have but to remark that there was an Aryan doublet to *ndh*, viz. *nd* (cf. Noreen, Urgerm. Lautlehre, §51, 2), represented in Greek *πυθμήν* || *πίνδαξ* 'bottom.'

with Sk. *-a-dh(γ)āi*, Grk. *-ε-<σ>-θαi* for *-α-<σ>-θαi*¹; the two last had already been brought together by Bartholomae (Rhein. Mus. XLV 151 sq.). It is to be noted that this infin. is used as an impv. (Part I, p. 439). We shall not go amiss, then, if we recognize the same origin in the impv. suffix *-dhi*, Grk. *-θi*, Sk. *-(d)hī*.² In Sk. we have a doublet *kuru* || *kuru-hi*; Lat. *ī* || Grk. *ī-θi* 'go' may serve for an Aryan example. The nature of the form in *-dhi* is disclosed by the Lat. locutions *fac amēs* || *amā* 'do love' || 'love,' emphatic and unemphatic. In the infinitives also there was the doublet **ag-ṃ + dhāi* and **agam* (cf. the author, A. J. P. XV, p. 218). From these sources *√dhā* penetrated into verb-inflexion. In Latin also this impv. termination is to be found in a modified form in the enclitic *-dum*, e. g. *age-dum*. It is also seen in *ce-do* (infra, footnote), which is precisely comparable with the adv.-prep. *en-do* in formation. The earliest form of the suffix *-dhi* we do not certainly know. It may, after all, base on a demonstrative stem, for *√dhē* means 'put,' and *put* is very clearly a demonstrative.³ The earliest formations with **-dhē*

¹ But *-α-(σ)θαi* is preserved in *πρίσθαi*.

² For *-ī* cf. RV. VII 31, 4; *-ī* is also found in older Avestan and in old Persian.

³ This point requires no demonstration on the semasic side. As a conversational word *put* means nothing save in so far as it is supplemented by a directive adverb. Under the conception of the impv. ending *-θi* as a demonstrative we have no difficulty in identifying it with the case-ending *-θi*, as in *κρηδ-θi* (Homer, 9 times) 'in the heart.' Other varieties of the same termination are seen in *ἐν-θα*, *ἐν-θεν*. In *-θα* of *ἐν-θα* 'there, thither' I see the undifferentiated Aryan *-a* of the stem: *-θi* in the verb is due to assimilation to the primary endings, and in the noun to the locative *-i* (cf. Part I, p. 423). There is every reason, on the semasic side, to claim kinship between this *-θi* of the 'where' locative and *-δε* of the 'whither' locative. In point of phonetic kinship we would have to set up an Aryan doublet *dha* || *da*. Our warrant for doing so is not limited to Greek, for Goth. *du* || Ger. *zu* implies the same variation in the initials. I cite the following forms referable to this Aryan demonstrative doublet *dha* || *da*: Avest. reflex. *dim* (cf. Avest. *hi-m*, Lat. *se*, *i<p>-se*, with *<p>* from *eum<p>se*, Grk. *ἐ* and *ἐαυτόν* for a similar reflexive turn to a demonstrative stem); Lat. *i-dem*, Grk. *δ-δε*, *δεῖνα* (like *κείνος* in formation, with *a* = Aryan *a*, Part I, p. 425), akin to which is *οὐ-δεis*, on which popular etymology has been at work, Homeric *ἰδέ* 'and' (cf. Lat. *idem* 'likewise'), Sk. *i-dam*, and the infixed *-d-*, *-da-* in O.Irish (cf. Wind., Ir. Texte, pp. 513, 515). Greek preserves the doublet in the adverbial forms *ὅθι* || *θην*, which are of closely parallel use: thus with the impv. A 545 *μὴ δὴ . . . ἐπιέλπεο* (N 620 *λείπετέ θην . . . νέας*, where *λείπετε* is *fut. impv.*, cf. *ὀψεσθε*, Ω 704, and Seymour's Lang. and Verse of Homer, §30; *ἐπειδὴ*) (*ἐπεί θην*, π 91;

passed into the root just as was assumed above (Part I, p. 435) for the *-kē-*formations. Thus it is pretty generally agreed that Sk. *√yudh* 'fight' is an extension of *√yu* 'unite,' by *√dhē* (Brug., Gr. II, §689).

The ENDING IN *-dha* EXTENDED itself beyond the infin.-impv.: Sk. 1st plur. *-ma-hi*, *-ma-he*, Avest. *mai-ðē*, Grk. *-με-θα*. In the Sk. ending *-ma-hi* (act. *-ma*) we have probably an emphatic extension based on the impv. doublet *kuru* || *kuru-hi*. The Sk. and Avest. primary endings are made to accord with the other middles (infra, p. 17), and especially with the infinitives in *-dh(y)āi*. In Grk. *με-θα* we either have *-dha* with the primitive vocalization retained, or considering the form *-με-σθα* (? or *-μεσ-θα*, *ἰκούεσθα* 9 times, *μαχομέσθα* 3 times in Homer), the 2d sg. ending *-σθα* has affected the vocalization by a conscious¹ interpretation as 'I+thou.'

In SK. 2D PLUR. *-dhvam* || *-dhuvam*, Avest. *-ðwem* || Gāthīc *-dūm*, the same demonstrative must lurk; with *-dhvam* 2d dual *-σθον* has already been compared, but the *-σ-* has not been satisfactorily explained, and we cannot be certain of **σθFov*. In Aryan there were the two impv. endings *sa* (Grk. *-σο*, Lat. *-re*) and *s-wa* (Sk. *-sua*), of which the latter is a compound demonstrative (Part I, p. 412). There was also the impv. ending *-dha*. In Sk. *-dhva-m* I see a similar compound demonstrative, *-dha + va-m* (for *-m* see below, p. 16). IN GRK. 2D DUAL *-σθον* I see *sa + dha-m*. It is possible, however, to explain 2D PLUR. *-σθε* as equal to 2d sg. pf. *-σθα* (Part I, p. 418; infra, p. 16), and thus connect with the Sk. act. ending *-tha*.² The two explanations do not exclude one

apodotic, *ὅθ*, E 898) (*θην*, I 394. Greek has a further demonstrative in *δεῦρο*, from **δε + ορο* (Kaegi, Gr. Gram.², §227, 4), **ορο* being related to *ἄλλος* (Part I, p. 433); the sense 'hither' comes from the **δε*, a demonstrative sign to a distant person (*αρα-*). Latin has a similar composition in *de-in* || *in-de*, where the pronominal stem *a-n* appears. To *δεῦρο* belong *δεύτερος* 'second,' *δείτερος* 'last'; cf. Lat. *alter* 'second': *ultra* 'afar.' On the meaning cf., however, Brugmann in KZ. XXV, p. 299. I note that *δεῦρο* makes a quasi-plural *δεῦτε*. Of comparable formation is Lat. *ce-do*, where *-do* is a demonstrative suffix, and this too has shaped itself a plural in *-t-te*.

¹ An agglutinative origin for the endings makes it necessary to consider the psychological moment as everywhere present. Back of *-μεσ* lies a conscious 'we.'

² Hillebrandt (BB. XVIII, p. 279) has previously made the same explanation, but this was unknown to me when the first draft of my own explanation was made. There are no impeccable examples of Grk. *θ* = Sk. *th*, *pace* Zubaty

another. In both Sk. and Grk. the emphatic *-dh-* forms were put in the 'MIDDLE' (infra, p. 17); and in Grk. the *-σθ-* was generalized as a substitute for *-θ-* in verb-inflection.

It seems possible also to find here the LAT. 2D SG. IMPV. *mino*,¹ Osc.-Umbr. *-mo*. The phonetics involved can be illustrated from Lat. *imus* beside *inf-ra*. The earliest Italic was **n_od+mo-*, whence **inbmo-*, **immo-*, *imo-*. In *-mino* I see **-dm+na*, whence **mm'no*, *-mino*. It is not absolutely necessary, however, to operate with *-dm-* if we treat Sk. *-dhvam* as a direct representative of an Aryan form, whence in Latin the development would normally be *-dvam>-bam*, and, in monosyllabic roots, *-bm-²* (*>-mm-*), to which was added the *impv.* suffix *-na* (cf. Brug., Gr. II, §1010); in the Vedas this suffix was freely added to 2d act. *impv.* *-ta* (Wh.², §§549, 618). We could thus interpret the *-i-* of *-mino* as anaptyctic. As regards the relation of Osc.-Umbr. *-m-o* to *-m'no*, it is possible that *-m-* is for *-mn-* (cf. v. Planta, l. c.,

(KZ. XXXI, p. 1): *οισθα*, whence the ending *-σθα* (: Sk. *-tha*) spread in Greek, can never have been dissociated from 2d sg. *impv.* *ισθι*; cf. also *ἡσθα* and *ισθι* (*είμι*). For Wackernagel's equation of Sk. 2d sg. *-thās* with Grk. 2d sg. aor. passive *-θη-ς*, I refer to the explanation to be given presently. Zubaty's comparison of *ἀθήρ* 'ear of wheat' with Sk. *athart* 'etwa spitze' fails because of *ἄνθος* 'flower'; cf. *ἀνθήριξ* 'ear of corn.' The comparison of *ρόθος* 'swift motion, noise' with *ῥάθια-ς* 'chariot' is not conclusive. Joh. Schmidt's comparison with OHG. *stredan* 'fervere' is as good, and Bechtel's comparison with Sk. *vrādhāt* 'noisy stream' is still better (BB. XX, p. 255). I suggest myself that the word is Sk. *vrā* 'bark, roar, flow' (: *vrī*, infra, p. 5) with the *-dha* extension. In Aeschylus's *πολυρρόθιος* 'loud roaring (wave)' the *-pp-* comes from *πολύρρυντος* 'strong-flowing (sea)'. Homeric *ἐπιρροθος* meant 'cheerer on'; compare *ἐπιρρίζω* 'set on a dog' (Aristophanes); the *-pp-* comes from association with *ἐπίρρησις* 'rebuke' (Archil.): *vrē* (or ? *vrser*). The *θ* in *πλαθάνη* 'board' derives from **πλατην*, with *τν>θν* (cf. Curt., Etym.⁵, p. 502; Feist, Got. Etym., s. v. *ahana*, *χν<κν*): the same phonetic relation in *λανθάνω*: Lat. *latere*; *φάτνῃ* || *πάθνῃ* 'manger' is better connected with *πατέομαι* 'feed' than with *πίθος* 'cask' (cf. Prellwitz, s. v.). Association with other congeners often estopped the change, e. g. in *πίτνῃμι*. We can explain *μανθάνω* 'learn' as **mn+ dha* 'put in <one's own> mind, learn' = Lat. *mandāre* 'put in <another's> mind, suggest, enjoin'; cf. Sk. *mandhātār-* 'der Sinnige.' For further remarks on Sk. *-tha* compare below, p.

¹ But also 3d plural; cf. *appellamino*, MS reading in Cicero de Leg. III 3, 8.

² For the change of *dm* (*pm*) to *bm* (*fm*) in Oscan I cite Osc. *imaden* = Lat. *imā<d> + in*. Therefore I have represented the change as Italic. Thurneysen's explanation of *imus* from **ins-mo* because of Ir. *iss* is entirely unnecessary, for *iss* is itself referable to **n_od_h+tō* with a different superlative suffix but otherwise identical with *imus* from **n_od_h+mo*.

§152), i. e. *-mmo* was the first form: we could thus see in Umbr. 3d plur. impv. *-m^umo* an anaptyctic vowel.

The ending *-dh^aam* may also lurk in the Lat. FUT. 2D PLUR. (pass.) *°b^umini*, which was susceptible to employment as an imperative. Its phonetic history may be illustrated thus: post-tonic *-dvamnī* > *-bim^unī*. For *ī* of the ending *-nī* in this deponent ('middle') form the source must be sought in *-ī* of the pf. It is generally agreed, however, that the ending *-minī* is participial, or infinitival (cf. Stolz in Hdbch. II², §98). With a 2d plural *-minī* already in the language, the extension of the *bi-* of *bi-mini* to the entire fut.-tense system is rendered easy. The impf. *-bās*, *-bat*, etc., would be modelled on *-bis*, *-bit*, like *er-ās*, *er-at* to *eris*, *erit*.

But an explanation of the *-b-fut.* in Latin must also suit the *-b-fut.* in O.Irish, and it seems possible that *dw* becomes *db*, *b* in this language (Brug., Gr. I, §175). But another explanation has also occurred to me, which I now proceed to give, viz. Lat. fut. *-bī* = Grk. *-θῆ-* of the aor.-fut. passive.¹ Before this thesis can be proved it will be necessary to prove (A) that the ARYAN LANGUAGE HAD A CONFUSION OF *ē* AND *ī*, and (B) that the CELTIC LANGUAGE SHOWS, like Latin, A PASSAGE OF *-ā-* (p) INTO *-b-*.

A. The phonetic interval between a close *ē* and an open *ī* is almost nothing. We know that in Latin *ei* was a variant spelling for either (cf. V. Henry, l. c., §§29, 33). In one Italic word the spelling with *ī* for *ē* is universal; cf. *fīlius* 'suckling' || *fēmina* 'she who suckles.' In Sk. *ī* is very frequent as a variant to *ā* in roots that are known to have Aryan *ē*. This has been gravely ascribed to 'apt Ablaut's artful aid,' as if naming a thing explained it. I cite to Aryan *√mē* the double present systems Sk. *māti* || *mimīte*²; to Aryan *dhē* 'suck' Sk. *a-dhā-t* || *dhī-tā*, and,

¹ It was one of the tenets of the first students of linguistics that these Greek tenses were formed agglutinatively, and in *-θῆ-* they recognized the root of *τι-θη-μι*. Wackernagel (KZ. XXX, p. 302) and V. Henry (Gram. Comp.², §102, footnote) have explained the *-θῆς* as an ending = Sk. 2d sg. mid. *-thās*, and on this *sole* foundation the entire aor.-fut. pass. has been built up. The theory has another great objection: there is no proof for Grk. *-θ-* = Sk. *-th-* (supra, p. 2), and many certain etymologies seem to contradict it.

² I find in the reduplicating vowel *-i-* of the present proof of the correctness of this view. Thus if we recognize the root as *mē* || *mī*, we understand how the second form might reduplicate *mī-mī-*.

with 'guṇa,' *dhenú*¹ 'cow'; to Aryan *√dhē* 'put' Sk. aorists *dhā-mahe* || *dhī-mahi*. As to the form *dhī-mahi* there seems to be a confusion in the famous Sāvitrī verse as to whether it comes from *√dhā* 'put' or *√dhī* 'think' (cf. Whitney's note in Kaegi's RV., Am. ed., n. 222). Aryan *√dhē* seems to have developed the meaning 'think' in other languages. We have in Homer the locutions *θεῖναι τινί τι ἐν φρεσὶ* (Φ 145), and *θέσθαι ἐν φρεσὶ* (δ 729) c. infin. 'to think of doing a thing.' Even more explicit is φ 333 *τί δ' ἐλέγχεα ταῦτα τίθεσθε* 'why do you put this <down> an insult to yourselves.' For further examples see L. and Sc., s. v. *τίθημι* B. II. The same usage belongs to Lat. *fa-cio*: thus Cic. N. D. I 8, 19 Plato construi a deo mundum facit. Very common is the impv. *fac* 'put case, suppose' (cf. L. and Sh., s. v. I B. 4-6). In Sanskrit forms of *√dhā* show this meaning (cf. Lanman, Sk. Read., s. v. *√dhā* 9); but this meaning was provided for more particularly by the forms in *dhī*^o, which thus developed into value as a 'root.' So *√dhē* 'suck' is but a specialization of *√dhē* 'put.' If we note the Aryan idiom vouched for by Sk. *gārbham* + *√dhā*, Grk. *θέσθαι* *νῆον* 'conceive a child in the womb,' we can see in Lat. *fē-mīna* 'woman' a ptc. meaning 'she who conceives,' whence the passage to 'suckling mother' is natural enough.²

Greek also gives its warrant for *-ī-* in congeners of this root: *θῆς*, gen. *θιν-ός* 'beach,' Sk. *dhānu* || *dhanū* 'deposit, sand-bank.' In the latter form the accentuation has shortened the previous syllable. There was doubtless an Aryan doublet *dhēn* || *dhīn*. To this group Lat. *fīn-is* 'boundary' also belongs. The banks of streams are natural boundaries.³ O.Ir. *dūn* 'arx' also belongs here; one meaning of Sk. *dhanū* is 'promontory'; the Eng. word *dune* is said by Kluge (s. v. *düne*) to have been borrowed from

¹ I see no reason why the diphthong here (*e<ei*) may not be on the same footing as the Lat. variant orthography and pronunciation of *ē* || *ī* by *ei*. Comparable also is the so-called spurious diphthong *ei* in Grk. for *ē*. In line with this are the Sk. pfs. in *e* to roots in *a* (Aryan *ei* : *ē*); cf. Lat. *frēgi* : *fra(n)go* (infra, p. 26).

² Perhaps the semasy had another development: Ω 58 *Ἐκτωρ μὲν θνητός τε γυναικά τε θῆσατο μαζόν* means 'made a woman put <down> her breast' (cf. ο 506 *παραθείμην δαῖτα* 'have meat set before one'). The only other passage is δ 89 *ἀλλ' αἰεὶ παρέχουσιν ἐπηετανὸν γάλα θῆσθαι* 'they always have milk to set <before> themselves,' where *παρέχουσιν θῆσθαι* may be for *παρ' ἔχουσιν θῆσθαι*.

³ I cite Sall. Jug. 79, 3 Neque *flumen* neque mons erat qui *fines* eorum discerneret. I note that with the semasy thus vouched for, one ought to be careful about separating *ὄρος* 'boundary' from *ὄρος* 'mountain.'

this Celtic word, and it still preserves the sense of 'sand-bank.' The primitive Celtic was **dēnū*, whence *dūn* by infection (cf. Windisch, Ir. Gram., §22, and the forms *laigiū* || *lugu*, **ber-u* || *do-bur*). I further suggest that in *φῖ-τν* 'son, scion' we have a **θτ-τν* affected in its initial part by *φντόν* 'scion.' Dialectic variations of *φ°* || *θ°* would help to this (cf. the author in Proc. A. P. A., 1894, p. ix).¹ Along with this demonstration of the doublet *dhē* || *dhī*- we reach a different point of view for judging the Sk. ptc. *hī-tā*, Grk. *θε-τός*. I see here no **dhā-tō*, but merely the shorts to the corresponding longs (cf. Bechtel, Hauptprobleme, pp. 98, 151).

I add some additional Greek examples that are more or less plausible: *ἰθύς* from **sādhús* : Sk. *sādhús*; *ἦνι-ς*,² an epithet of a 'heifer,' and *ἰνις* 'son, daughter'; *ἦκω* || *ἴκω*³ 'come,' to which the spelling *εἴκω* also occurs dialectically (Doric), an orthography showing association perhaps with *εἴμι* 'go.'⁴

¹ I there suggested that Grk. *φῶρ* 'thief' is for *θῶρ*, Lat. *fūr*, Sk. *dhār-ta*, with influence from *φέρειν* 'carry off, <plunder>,' and especial association with the doublet *φῆρ* || *θήρ* 'wild-beast.' As confirmation of the latter suggestion I note the proverb cited by Arist. (Eth. E. 7, 1, 5): *ἔγνω δὲ φῶρ τε φῶρα καὶ λύκος λύκον*. The wolf was *ferus* in Latin, and his character as a thief is attested by Tibull. I 1, 33 *At vos exiguo pecori, furesque lupique | parcite*.

² There is probable kinship with *ῆ-βη* 'youth.' The rough breathing may be that we see in *Ἑστία*. I suggest that this had a pietistic origin. Greek was possessed of a group of words for which *ἀγῆς* 'accursed' and *ἁγός* 'holy' are representative. The latter was a frequent epithet of divinities, and possibly its aspiration was extended to names of divinities beginning with vowels. If we bear in mind that *ἀγος* meant a 'thing polluted' in a religious sense, while *ἁγος* meant a 'thing sanctified,' it does not seem hard to believe that the rough breathing was a conscious point of reverential pronunciation. One hears very commonly in America a pronunciation of the name of the deity something like *Gāwd* in the pulpit, even where the current pronunciation is *Gōd*. This I have always associated with the reverential intention (cf. Whitney, however, on Sporadic Phonetic Change, IF. IV, p. 32). In the lips of some such speakers there is a marked intensification of this aberrant pronunciation. We use in English a long-continued spirant (*sh* = Sk. *ṣ*) in the sense of the Grk. *εὐφῆμει*, Lat. *favē linguā*. Possibly the Greek pietistic rough breathing has some connection with this. The pietistic influence can be seen in *Schepfer* 'creator,' but *schepper* 'dipper' in the Silesian dialects (cf. Weinhold, Ueber deutsche Dialectforschung, p. 73; cited by Wiener, Mod. Lang. Notes, X, No. 1).

³ The root is *sē* in *ἵμι* 'send,' i. e. 'cause to go,' but the *-κε-* has become a permanent part of the stem (Part I, p. 435). The congeners of Grk. *ὁδός* 'road' are doubtless extensions by *-de-* of the same root *sē*.

⁴ Or *ei* is on the footing of the diphthong in *dhenū-* (supra, p. 6, n. 1).

Another example is furnished by *ἥρως*, where the rough breathing was pietistic. The unaffected etymological form is found in *ἥρανος* 'guard, friend' and in *ἥριον* 'hero's grave.' Sk. *vāraṇā* (RV.) 'strong, powerful,' *vāra* 'treasure,' Lat. *vēr-us* 'true' are congeners. The root was doubtless *vr* 'cover, close.' In Sk. *vīra* 'hero,' Lat. *vir* and *vir-tus* we have the *i* vowel. Eng. *close* (adj.), *to close* (vb.) show a striking semasic parallel, e. g. 'a *close* friend does not betray a secret.'

B. The prevailing doctrine at present is that in Celtic *-dh-* became *-d-*, and that then this *-d-* became *ḍ*. There is no reason why *-dh-* did not become *-ḍ-* at once in intervocalic position, and *-d-* otherwise. From this source original Aryan *-d-* received its impulse to become *-ḍ-*. For the passage of *-ḍ-* into *-b-* I submit the following etymologies: 1. O.Ir. *ucht* 'breast' is akin to Lat. *uber*, Grk. *οὐθαρ*, gen. **ουθητ-ος*, Sk. *ūdhar*, gen. *ūdhnas*. The phonetic chain of the Celtic word may be thus represented: **ūdh-ŋ-t->*ūḍ-ŋ-t->*ūḍh-t->*ūbit* (cf. *it* 'sunt,' Brug., Gr. I, §243, 3) *>ūbt* (i. e. **uḗt*) *>ucht*¹ (cf. *secht* = *septem*). 2. O.Ir. *lucht* 'people' <in attendance>, *luchtair* 'lanista,' Lat. *līber* 'free,' *libertus* 'freedman' (still in attendance on his master), Grk. *ἐλεύθερος* 'free.' The primary sense was 'noisy, outspoken':² *Līber* and *Ἰακχος*, titles of the wine-god, both meant 'shouter.'

¹ I find it hard to believe that *ucht* 'breast' and *uball* 'apple' are not congeneric. It is a common modern association of ideas, and Ar. Lys. 155, Eccl. 903 use *μηλον* in the sense of 'breasts.' In the Anthology *κυδωνιάω* 'swell like a quince' and *μηλοῦχος* 'apple-holding (girdle)' are used of the breasts. There is also a passage of exquisite beauty in Aucassin et Nicolète (xii, l. 23), where the breasts are likened to two walnuts. It is clear from all the uses of *μηλον* that the name was suggested by the shape; the word may be connected with *mā* 'mother,' and have had a primary meaning of 'breast,' which was crowded out in Greek by *μαζός*, and in Latin by *mamma*. It has been supposed that the word *apple* (cf. Kluge, s. v. *Apfel*) has been derived from *Abella*, a small locality in Italy famous for its apples. But just the contrary thing may have taken place. Into the vocalization of this group space forbids me to go. The acceptance of primitive kinship would demand the acceptance of a European change of *-ḍ-* to *-ḃ-*. We might, however, avoid this difficulty by recognizing influence from the group of which *ὀμφαλός* 'navel' is a representative: I note that the Latin pair *umbilicus* 'navel,' *umbo* 'boss of a shield' (with Aryan *-bh-*) is represented in O.Ir. by *imblīu* and *uball* 'apple on a shield' (cf. Wind., s. v.).

² For *ἐλεύθερος* 'outspoken' cf. the author in A. J. P. XV, p. 220, f. n.; examples for *liber* are Pl. Cist. 127-8 Quiaque adeo me complevi flore *Liberi* | magis *libera* uti lingua conlubitumst mihi; Liv. XXXV 32, 6 vocem liberam mittere adversus aliquem.

The great festival at 'Ελευσίς had on the fifth day a procession to Eleusis called the procession of Iakchos, which was of a very noisy character.¹ Thus it is clear that 'Ελευσίς belongs to the same group. In Lat. *liberi* 'children' we must see a primary sense of 'noisy.' In Ir. *lúth* 'joy' (yearning?) we have the same facet of meaning; and if we see in *lúath* 'quick' an underlying notion of noisy motion, we are able to bring ελεῖθω 'go' into this group. On the phonetic side I would see in *lucht* the development of an *-n*-stem lengthened by *-t* like that in *ucht*; in *libertus* the corresponding *-r*-stem² (extended also by *t*) is seen. 3. We have in Irish a word *ruád* 'red' corresponding to Lat. *ruber*, Sk. *rudhirá*; *rucht*³ (<**rubít*, cf. Sk. *rohít*- 'red') 'red <tunic>' seems to be an indubitable congener. The conclusion to be drawn from these three examples is that the Latin *-ā-* which passes into *-ō-* began to make that change in the Italo-Celtic period.⁴

Returning from this digression to the discussion of the *b*-forms, I seek to prove that in the fut. *-bit* we have composition with *-dhē-*. According to this theory a fut. *calebit* must have been at one time **calefit*. This constructed form is in actual existence (save for the quantity of the *e*⁵) in the sense of 'is made warm,' a pr. pass. to *calefacio*. When the form **calefit* was in this state, its termination was associated with *fit*, 3d sg. pass. to *facio*, and forms like *calefacio* created, but this did not keep the form from

¹ I cite from Stengel (Iw. Müller's Hdbch. V 3, p. 123): "Jakchoszug hiess die Prozession nach dem Gotte. . . . Es ist eine Gottheit, dem Bakchos nahe verwandt, der Gott der lärmenden Freude."

² I note that *vir* and *homo* have *r*- and *n*-stems; variation of *r*- (*l*-) and *n*- is seen in Eng. *girl*: Lat. (gen.) *virgin-is* (cf. H. Möller in P.-BB. VII, p. 542, who reconstructs a reduplicated stem **gherghen-*); there is ultimate relation, too, between πατήρ 'father' and πότνια 'lady.'

³ Windisch, s. v. "i. *inar*, ut dixit Fercertne: *hi n-deich ruchtaið derga*, Corm., p. 39"; *inar* means 'tunic' and *derga* after *ruchtaið* means 'red'; *rucht* 'tunic' is doubtless an extension like Lat. *purpura* 'toga' and our 'purple and fine linen.' I note the language of a little girl, who asked me one day: "Have I got on a flannel and a white to-day or two whites?" <sc. petticoats>.

⁴ In all the O.Irish forms the change seems conditioned on a *t* following the *-ā-*, and this *-t* is possibly present in the background of all the Latin words (*rubidus* for **rubitus*, cf. the author in A. J. P. XIII, p. 475); by this explanation it will be easier to explain *iubeo* (3d sg. *iubet*), which was entirely devoid of noun-kindred to hold it in place, as e. g. *fides*: *fido*, etc.

⁵ The lengthening took place in the quadrisyllabic forms, *calebitis* like *cupidinis*: *cupidus*, and is comparable with that in σοφώτερος.

passing on to *calebit*. I thus endow my verb with the form *calet* 'is dry' and **calefit* 'is made dry'¹; they were adapted to different uses, and *calebit* became a fut., helped to this, perhaps, by the form *erit* (infra, p. 21); but certainly no English-speaker would find it hard to believe that the fut. sense has developed directly from the pres. Beside *erit* and *eram* there grew up a pair *calebit* and *calebam*.

The phonetics involved in this explanation have been already explained on the basis of an Aryan doublet $\bar{e} \parallel \bar{i}$ and the Italo-Celtic change $\bar{d} > \bar{b}$. Implicit in this explanation is the assignment of Lat. *fio* to Aryan $\sqrt{dh\bar{e}}$. This identification of the earlier 'linguisticians'² has been latterly abandoned. Brugmann constructs *fio* from **bhu-īḡō* (Gr. I, §56) and from **fū-io* (ib. II, §707). Bartholomae (Stud. z. i.-g. Spr.-Gesch. II, p. 191) writes the base **bhuīḡō*, with an \bar{i} to suit his $\bar{a}\bar{i} \parallel \bar{a}/\bar{i}$ ³ series. But with the numerous Sk. forms in which $\sqrt{dh\bar{e}}$ appears as *dhī-* (supra, p. 5), who shall say we do not have the same phenomenon in Latin? If *fio* belongs to $\sqrt{bh\bar{u}}$, why does it everywhere appear as the pass. of *facio*⁴? It is incredible to me that, with a large development of $\sqrt{bh\bar{u}}$ in Latin (*fui, fuat, futurus*, etc.), such utter

¹ i. e. 'becomes dry'; note the Germ. fut. auxiliary *werden*.

² This neologism should be as good as 'statistician,' 'logician,' etc.

³ On the basis of a few highly questionable Sk. preterites in *-āit* for *-it* (cf. Wh.², §904 b), Bartholomae makes an ingenious but altogether improbable plea for such a series. The forms are *viṣarāir* (AV. XII 3, 18), *pārācarāit* (ib. VI 66, 2), *dacarāit* (ib. VI 32, 2), but there are MS variants in *-is*, *-it* for all the passages. The forms *ajāir* (RV. IX 72, 5), *apājāit* (AV. XII 3, 54) are to be explained as belonging to \sqrt{ji} , as Prof. Whitney assured me in a private letter (cf. also his Vb.-Roots, s. v. \sqrt{ji}). In AV. XII 3, 18 *viṣarāis* is certainly an 'injunctive.' I see in it nothing but a 2d pers. to the dithematic *-āi* of the 1st pers. (Part I, p. 439), which was not primitively a 'middle,' but corresponds to the monothematic ending in Grk. opt. $\phi\acute{\epsilon}\rho\text{-o}\iota\varsigma$. The augmented forms are susceptible to the same explanation, for the augment had originally no past value. Nothing is commoner in Vedic style than the occurrence of an augmented aor. in a string of petitions, and the explanation in vogue is what may be called the explanation from *naīveté*, which makes the petitioner express the thing wished for as the thing realized. But as the unaugmented forms are injunctive or narrative, I see no reason why the augmented forms may not now and then be narrative or injunctive (Part I, p. 422). A warrant for this usage is found in the Greek aorist as a future and a hortative (cf. Goodwin, M. and T., §§61-62). Explanation of this phenomenon is to be sought in the original timelessness of the verb. The *-s*-fut. and aor. developed from the same or cognate agglutinative groups (Part I, p. 422).

⁴ Cf. *fitum est* for *factum* (Liv. Andron. ap. Non. 475, 16).

phonetic and semasiotic dissociation should have been made. It seems to be natural for a 'be made' to pale in signification to a mere copula 'be,' but the converse process is much more difficult to grant.

The most plausible justification of these monstrous-looking forms **dhūiō*, etc. (which look even worse written **dhwīyo*) is the equation of Lat. *°fio* in *suffio* 'fumigate' with Grk. *θύω* 'sacrifice.' Now, the shift of meanings in *θύω* and its kin is absolutely Protean (cf. Prellwitz, s. v.). From Sk. *√dhū* || *dhū-kṣ* 'kindle,' *θύω* 'offer <in the fire>,' and *°fio* 'fumigate' we cannot go wrong in ascribing to this group an Aryan sense of 'kindle.' But there is more than a hint of the self-same semasiotic for *√dhē*. In Latin comedy the phrase *rem divinam facere* 'sacrifice' is very common, and *facere* || *feri* is used alone in this sense (cf. L. and Sh., s. v. I B. 8). Grk. *τίθημι* comes close to this in its sense of 'offer to the gods' (cf. L. and Sc., s. v. A. III 2).¹ Much more pertinent is the use of *τίθημι* as a *terminus technicus*² for gathering the firewood. In Sanskrit *ā* + *√dhā*³ was the special *terminus technicus* for kindling the sacrificial fire. If we note that Lat. *suf-fio* is not restricted to the sense 'fumigate,' but also means in general 'burn' (Lucr. II 1098), it will be possible to regard this *°fio* too as belonging to *√dhē* || *dhī*. To this conclusion we seem led by a comparison between the Roman and Hindu funeral rites. Festus (p. 3, Müll.) thus employs the word *suffitio*: *funus proscutū redeuntēs ignem supergradiebantur aqua aspersi; quod purgationis genus vocabant suffitionem*. Similarly in the Hindu ritual, after the burial of a *Guru* they carry off the old fire and, returning, kindle a new one (*Ācvalāyana* Grh. Sū. IV 6, 1-6): "when all sounds have ceased, or when <the others> have gone to the house or the resting-place, <the performer of the cere-

¹ I note Z 92-3 *θεῖναι* <*πέπλον*> 'Ἀθηναίης ἐπὶ γούνασιν ἡνκόμοιο | καὶ οἱ ὑποσχέσθαι δοκαίδεκα βοῦς ἐνὶ νηφ'.

² Cf. Aristophanes, Pax 1023 sq.:

σέ τοι θύρασι χρὴ μένοντα τοῖνυν
σχίζας δευρὶ τίθεναι ταχέως
· · · · ·
οὐκὼν δοκῶ σοι μαντικῶς τὸ φρύγανον τίθεσθαι,

where the word *μαντικῶς* clinches this statement.

³ I note for Latin Plaut. Rud. 767 *ignem magnum hic faciam*, and Capt. 843 *iube . . . ignem ingentem fieri*. We have possibly a compound of *√dhē* in Mil. 411 *inde ignem in aram*, unless indeed *inde* is to be referred to Sk. *√indh* 'kindle,' a root warranted for Italic by *aedes*, *aestus*, etc.

mony> should pour out an uninterrupted stream of water, beginning at the south side of the door, . . . <going round the house>, ending at the north side of the door" (Sū. 7).¹ If one believes in an Aryan folk at all, it will be necessary to believe that these ceremonial acts go back to a common basis.²

But support is possibly given to this theory for the development of the pf. from the pairs *per-do*, *ven-do* with their passives *pereo*, *veneo*. Now, if these actives contain √*dhē*, as is generally supposed, we might expect a pass. in *-dhī-* (>*bī-*), and this we actually have retained for us perhaps in a proverbial sentence of Plautus, where we are supposed to have a form of *perbitere*. Plautus's uses of this vb. are as follows: Rud. 495 *utinam . . . Malo cruciatu in Sicilia perbiteres*; Pseud. 778 *interminatus est . . . Siquis non hodie munus misisset sibi Eum cras cruciatu maximo perbitere*. In the latter passage *perbitere* is plainly a fut. infin. so far as the sense goes, and in the former the sense is that of a plupf. subj. This relation is precisely paralleled by *fore*, *fores*.³ But one other passage remains to be discussed, Capt. 690 *Qui per virtutem peritat non interit*. This is the MS reading, but a *corrector recens*, whom Schoell takes to be Camerarius, has written on the margin of B. *perbitat*; and Spengel, followed by Brix, reads *perbilit*, while others have divided *perit at*. In Nonius's time the reading was supposed to represent *perire*, but Osbernus reads *peritat* as indic. to *peritare*. Of all the corrections that have been proposed, *perbitat* involves the least change. I propose to read the line: *Qui per virtutem perbit at non interit*. This verse has all the look of a '*sententia*,' and may be much older than Plautus. A contextual motive for the change is close at hand: cf. vs. 693 *Vel te interisse vel perisse praedicat*. Plautus is here unquestionably playing on the relation of *-do* and *-eo*; contrast 694 *Dum pereas, nihil interdo*⁴ *dicant vivere* with the

¹ This is Oldenberg's translation (S. B. E. XXIX, p. 248), but I am not sure of the italicized passage.

² It would be going too far afield to seek completeness on this point. The meaning of *ignem supergradiebantur* is not easy to state. Does it mean 'jumped over the fire' or 'walked round it'? In form *suffitio* must belong with *upa* + √*dhā* 'put <wood> on <the fire>.' The next sutra begins with *agnim upasamādhāya* 'putting the fire in place.'

³ For *foret* as plupf. subj. I cite Bacch. 1047-8 *ne ille edepol Ephesi multo mavellem foret*, | *Dum salvos esset, quam revenisset domum* 'I would prefer his having stayed,' etc.; cf. also Mil.² 49 c. Brix's note, Trin. 832, 837; Truc. 89; Tibull. I 10, 11.

⁴ Conjectural reading, but very probable; cf. Brix ad loc.

previous verse, and also vs. 683 Si ego hic *peribo*, si ille, ut dixit, non *redit* with vs. 696 Si ille huc *rebitet*,¹ etc. I cite as a warrant for the proverbial nature of this play on the words Epid. 74-6 Puppis *pereundast* probe | Quid istuc ad med attinet | Quo tu *interbitas* modo, where *interbitas* is R. Müller's correction for the unmetrical *intereas*. If we can assume that vs. 690 as I have given it was a maxim of long standing, we then reach a point from which we can explain *bīto*, that utter *crux* in Latin etymology²: from *perbit* at the user of language got over to a *perbitat* of equivalent meaning with *pereat*. The parallelism of *perbitere* and *perbiteres* with *fore* and *fores* should make us see a fut. idea in the maxim, thus: 'if a man were to perish for virtue's sake, why that's no death.' In all the cases of *betere* (cited by Brix, Capt.⁴ 380) only pres. subjs. in -as, etc., futs. in -ēs, etc., and, in addition to the fut. forms cited in the text (*perbitere*, *perbiteres*), the 1st sg. *rebito* (in a fut. condition) occur. It will thus be seen that the verb never strayed far from its original employment.

The case resolves to this: *fīo*, *suffio* can be referred to √*dhē*; *fīo* with a far better semasy than by the identification with √*bhū*, while *suffio* shows too good a semasic concordance with *upa*+√*dhā*³ to be inevitably referred to *θύω*.³

¹ Conjectural reading; cf. Schoell ad loc.

² Latin varies between *bīto* and *bēto*, which is in line with my explanation. The spelling *baeto*, for which there is very slight MS warrant, is only a palaeographic variant for *bēto*. There is no cogency whatever in comparing the Osc. word *battels* with *bīto*, for its signification is utterly dark (cf. Bugge, KZ. XXII, p. 438 sq.).

³ I am not sure but *θύω* can be brought into accord with √*dhē* || *dhi*. The semasy for the sense 'sacrifice' has been exploited in the text. We have but to mention Lat. *pro-fiscor* 'set out' to give early warrant for use as a verb of motion. For the three most immediate uses of √*dhē* 'put, set, make,' English shows plenty of phrases implying motion, and some of them rapid or hostile motion: 'make off, make forward, make at'; 'set out, set forward, set on'; 'put off <home>, put out,' etc.; the phrase 'then he *put out*' two persons rendered for me by *scooted* and *skedaddled*. It is not necessary to posit an Aryan √*sedo* 'go' (cf. Prellwitz, s. v. *ódós*), for this meaning can come from the sense 'set out' by decomposition. I note *φροῦδος* (<πρό+ódós) 'clean gone' as a source from which the meaning may have got back to the simple root. Thus, in point of semasy *ódós* is subsequent to *φροῦδος*. In Latin *facio* never became a 'decomposite' to *profiscor*. A word needs to be said on the phonetics. There can be no doubt of the vowel *u* having a connection with this root. Plautus gives ample warrant for *creduit*, Sk. *crād*+√*dhā*, and *perduit*: Grk. *πέρω*, Sk. √*spr*-*dh*, where we must recognize composition with

Support has been derived for *fio* : *√ bhū* from Celtic *bīu*, which Windisch referred in Curtius' Grundzüge to this root. Against this etymology Stokes declared himself in his review of this work. Meantime Osthoff (M. U. IV 16, Ann.) based on it an Italo-Celtic phonetic law. Zimmer (KZ. XXVI, p. 423) declared, with Stokes, for the equation with Lat. *vivo*, which Plautus uses as a stronger *sum* (cf. Brix, Trin.⁴ 390). Windisch (KZ. XXVII, p. 165) defends his view on the semasic ground that *bīu* never means 'live' in the full sense of the word, and on the phonetic ground that the Celtic correspondents of Lat. *vīvus* always show *ī*. The combination of these two objections makes an objection to his etymology. There was an Aryan variation *ī* in this word (cf. *vīvus* : *βίος*). What wonder if Celtic adapted this variation to varying uses! Stokes (KZ. XXVIII, p. 84) declares: "The forms belonging to this root often retain their original meaning 'to live,'" and maintains the tenet that *bīuu* is a genuine representative of **bīvo* (< **gīvo*). Bartholomae (l. c., p. 190) brings into the argument the Ang.-Sax. forms, but these have no claim to being considered original. Gothic knows only *im*, *is*, *ist* in the sg., to which OHG. has made analogical forms *b-im*, *b-ist* (*b-is*), with retention of *ist*, while Anglo-Saxon has the forms *eom*, *eart*, *is*, and beside them *bēo*, *bist*, *bīp*. Analogy and syncretism have been very fully at work in the paradigm of the copulative verb. In *bist* the influence of the (Goth.) pret. *wast* and *waist* 'thou knowest' added a *-t-* to the first analogical form *bis*. In Ang.-Sax. 3d pers. *bīp* : 2d pers. *bist* we have to see nothing but analogy to *bindest*, *bindeþ*, or any regular verb. The 1st pers. *bēo*, 3d plur. *beoð* represent Aryan **bhevo*, **bhevont-ī*.¹

√ dhē (this by way of addition to my comparison in A. J. P. XIII, p. 480). Unexplained hitherto has been this vocalization. In Sk. *dhū-nu-te*, Grk. *θῆνω*, and inferentially in Latin (cf. *danunt* : *dare*), we see that this group had the nasal inflexion. If we assume a primitive **dhi-no/u* to *√ dhē* || *dhi*, the change to **dhū-no/u* is explicable phonetically. These syllables produce 'rounding' by anticipation, and thus *ī* becomes *ū* (cf. Vietor, Germ. Pronunc.², p. 10). Anticipative rounding has also produced the 'velars' (Proc. A. P. A. 1894, p. ix). To this phonetic condition we can refer Grk. *γυνά* < Aryan **gēnā* || *gēnā*. I note further Sk. *√ sã* || *sī* 'bind' and Lat. *su-o* 'sew.' Sk. *√ siv* || *syū* is a compromise form.

¹ Cf. v. Feierlinger in KZ. XXVII, p. 439 sq. His explanations of *bis* (2d sg.), *bīp* (3d sg.) as representatives of Aryan **bhvesi*, **bhveti* are not based on the warrant of any actually occurring forms, and the explanation by analogy given in the text seems to me sufficiently strong without creating a *bīs* as descendant of a primitive **bvis*, as an additional source for the analogy.

I sum up this argument by stating that Lat. *fit*, O.Ir. *bith*, Ang.-Sax. *bīð* are none of them referred with cogency to an Aryan **bhwīyet*, while the two first have just as credible connections with other roots, and thus this 'law' is based on altogether insufficient etymological material.

In Greek also $\sqrt{dhē}$ has become identified with a tense-voice-formation, the aor. and fut. pass. The passive voice is an accident of later adaptation. It is almost certain that the Aryans had reached no finite passive forms. They had, however, emphatic ('middle') forms in *-dh-*. In Greek there were doubtless other simple *-θ-* forms besides *-με-θα* and *-θι*, but the compound *-σθ-* forms prevailed after a conflict, of which *-με-σθα* shows traces. What wonder, then, if we find *-σθ-* beside *-θ-* in the aorist.¹

Seeing so many cases of development of inflexion by composition with $\sqrt{dhē}$, we must, it seems to me, return to the older explanation by which the weak German preterit was referred to this source. I take it that there are no insuperable phonetic objections in the way (cf. Brug., Gr. II, §907), and no other explanation gives so precise a correspondence of form as to equate Grk. *-θης* with Goth. 2d sg. *-dēs*. In the 1st sg. *-da* (<*-dhō*) corresponds precisely to Lat. *-bo*, and to this the 3d pers. *-da* was associated by the analogy of the strong preterit. But there was previously a 3d sg. **nasidēp* which was also a 2d plur., for we are under no compunction to believe that the *nasida*-type was always past. So when this 2d plur. **nasidēp* did receive past interpretation, it was extended to **nasidēp-up* > *nasid-ed-up*, thus: 3d sg. *nam*: 2d plur. *nem-up* = 3d sg. **nasidēp*: 2d plur. *nasid-ed-up*.

The greatest argument against connecting this weak preterit with $\sqrt{dhē}$ is the O.Ir. *-t* pret., but no valid objection can be made to regarding this pret. act. as just the equivalent of the pret. pass. in *-t*. In two persons it has the 'deponent' inflexion, and we

¹ Extremely neat is Henry's *ἐ-γνώ-σ-θης* = Sk. *d-jñā-s-thās* (Bull. Soc. Ling. VII, p. 29), but I have given reasons (supra, p. 3) for not showing any confidence in Grk. *θ* = Sk. *th*. For the *σ* of *γνώ-σ-τός* I posit the demonstrative doublet *te* || *ste*. Convincing proof of this can be given from the suffixes *-ter* || *-ster* in Lat. *ven-ter*: Grk. *γα-στήρ*; cf. also *Μέν-τωρ* and Lat. *mon-itor* with *mon-str-are*. The *-σθ-* aorists may be patterned on *-σμ-* of the pf., e.g. *ἐ-γνώ-σ-μαι*, but I would base aor. and pf. both on the ptc. doublet. I note that the ptc. suffix *-ne* also had a by-form *-sne* (Brug., Gr. II, §66). We can refer to this suffix *-ste* the group of formations for which Aryan **t* has been assumed (Brug., Gr. I, §469).

shall see below that the 'deponent' is either act. or pass. at will; this suits the origin of the *-to*-suffix entirely (Part I, p. 416).

The Lithuanian impf. in *-davau* (Brug., Gr. II, §908) is perhaps also to be referred to this source. Perhaps the original 1st sg. was *-d-au*, whence, by doubling the ending, *-d-av-au*.¹

THE ACC.-IMPV.—Sanskrit and Greek have a final *-m* that characterizes their impv. forms. I cite *duhām* 'let one milk,' *δείξον* 'show thou,' and Syrac. *λάβον*: Att. *λαβέ*. These are terminal accusatives, just like our English 'home,' which any dog understands to mean 'go home.' Thus *duhām* would mean 'to the milking.' The parallel group *λαβέ* || *λάβον* is on the same footing as Sk. 'injunc.' *bharata* || impv. ('mid.') *bharatām*, where *-tām* has the dithematic intention, as in 'subj.' *bharās* beside 'injunc.' *bharas*. In 3d dual *-ātām* theme and ending are both dithematic, and this dithematism characterizes the 2d and 3d dual of the entire 'middle.' We thus see that the *-m*-endings, as well as the *-dh*-endings, have come into play as inflective endings from the 'emphatic' impvs. Even thus there were not enough forms to go round, so we have in Sk. *bhavatām* not only a 3d sg. 'middle,' but a 3d dual act., and further a 3d dual 'middle' *bhāvetām*, formed by adding the self-same ending to the monothematic 1st pers. *bha-ve* (not in use as an impv., but sufficiently attested by the ending in Grk. *λῦ-σ-αι*, Part I, p. 439). It seems hardly necessary to note that in Sk. 2d plur. *-dhva-m*, Grk. 2d dual *σθo-ν*, the *-m* is due to the impv. Likewise in Grk. 1st sg. mid. *-ομην* we have the same extension of 1st sg. act. *-ομ* that we have in Sk. 3d sg. middle *-atām* to 3d sg. injunc. *-at*.

THE 2D SG. PF. *-stha*.—For this ending also an agglutinative origin is to be sought. I take this to be the 2d sg. of \sqrt{sta} ² and to mean 'thou art.' Every one knows how frequently forms of Sk. \sqrt{stha} are a mere copula³ (cf. Böhtlingk, p. w., s. v. 11); the same semasy is vouched for by *ἵστημι* (cf. L. and Sc., s. v. B); in Latin *stare* is often little more than an emphatic copula (cf. Aen. II 639; III 210; VI 471, 652, 697), and is used almost like *fui* in making passives (e. g. ib. III 403 *quin ubi transmissae steterint* trans aequora classes), a use that is paralleled in Sk. (cf.

¹ In any case the ending *-au* is to be referred, like Gothic *-au*, Sk. *-āu*, to an Aryan *au* (Part I, p. 429).

² This, like *dhē*, is a 'demonstrative' root (supra, p. 2, f. n. 3).

³ In modern Hindu dialects this development has gone on, and just as in Fr. *étais* to Lat. *stare*, the older sense is entirely lost.

Grassmann, Wört., s. v. 8, and Delbrück, SF. V, p. 407); in O.Ir. also this root has become a copulative verb (cf. Windisch, Gram., §386).

No phonetic objection can be made to taking this ending as *-st(h)a* instead of *-tha*. Historically it appears as *-σθα* in Grk., as *-st-ī* in Latin; these forms have been interpreted as analogical in Greek from roots ending in *-d/t+t(h)*, whence *-σθ-*; but to explain the Lat. form we have to resort to such forms as *diks-lī*. It were simpler to regard *-st-* as belonging to the primitive form, and this suits the conditions in Gothic better than the prevalent explanation. Thus the very important irregularities *waist*, *qast* (< **wait*+*st*, **qat-st*) are removed; forms like *skal-t* are thus explicable out of **skal-st*. In Indiranic the ending seems unquestionably *-tha*. I would suggest that this form arose out of the perf. **vaitstha*¹ (> Sk. *vet-tha*), but we must reckon with the possibility of an Aryan doublet *-ta* || *-sta* of probable demonstrative origin.

THE CONCEPTION OF VOICE in a developed stage, at least, could hardly have been present to the Aryans. An emphatic and a simple inflexion we can allow them (supra, p. 2), but the facts do not warrant us in going further than this statement, that endings in nasals just mentioned and developments from the emphatic forms in *-dh-* (supra, p. 4), along with 2d sg. *-sa* || *-sai*, 3d sg. *-ta* || *-tai*, may have begun to have a 'voice' value in the primitive period. Because both Greek and Sanskrit occasionally

¹ The question arises whether *-tst-* in Indiranic did not pass through the stage *-tpt-*, whence Sk. *-tth-* in *vet-tha*. It is known that the *kh* of modern India approximates to § (Wh.² 61 b), and the question must be regarded as an open one whether the 'aspirates' were not closer to the spirants than is generally supposed, for it seems possible to point the Vedic tradition in this way (Wh.² 37 d'). In Sk. *ṣsthā* we can explain the *th* as similarly due to the reduplication *tiṣṭh-*, i. e. *stt* = *sth*. In line with this would fall Sk. *ṣasthā* 'sixth', whence perhaps the Indiranic *-tha-* of ordinal formations. With the elimination of the *-sth-* cases the Sk. examples for *-th-* are much diminished. As a noun-forming suffix (Wh.², §1163) *-tha* may have arisen thus: *ukthā* 'saying' stands for Indiranic *uxtd*, with *xt* from *kt*, a phonetic change known in primitive Germanic, in Avestan, in Oscan and Umbrian, Celtic and primitive Slavic (Brug., Gr. I, §462). The ptc. *ukthā* would be a re-inforcement of the ptc. suffix from other sources, just as primitive Iranic *ft* falls back in Avestan to *pt* (Brug., Gr. I, §473, 1). Similarly *prsthā* 'back' would fall under the phonetics of *tiṣṭhati* above. If we note the adv. suffix-doublet *-dā* || *-dhā* we need not look on the *th* of *-thā* as original, especially as we have the doublet *dtha* || *dhā*.

attach the passive value to 'middle' forms, we cannot infer that this was an Aryan phenomenon, for Greek aorists in $-\eta\nu \parallel -\theta\eta\nu$, as well as Lat. *fio*, show passive value with act. form, and in the Celtitalic passive we are only to see a development from the deponent; for the inflective characteristics develop from the same sources as the Sk. perf. act. (Part I, p. 432).¹

THE NUMERALS.—In the three first numerals I see demonstrative stems. In *oi-* of the *unus*-group we have the 1st pers. interjection *ai* (Part I, p. 424); I compare the phrase 'Number One,' so often used in slangy English for the 1st person. In many children's games the counting-out formulas naively begin with the counter. In *du* of the 2d person we have the compound demonstrative *ta-wa* (Part I, p. 430),² or *da-wa*, with *da* used as in *δαιπο* (supra, p. 3). Back of *tr-* of the 3d person lies *ta-ra*, meaning 'that one yonder,' with the ordinal *tr-tó* (likewise a compound demonstrative) preceding possibly the stem *tri*.³ Hopkins's explanation of **qe-tur* (A. J. P. XIII, pp. 85-6) as '(one) and three' seems to me very plausible. For **pen-qe* I abide by the old association with *finger*, and think that **pen* meant originally 'hand.' I compare *πένης* 'hand' (i. e. laborer), and, with *r(l)/n* inflexion, the syncretic Sk. form *pāñi* 'hand.' We may

¹ I am but just made aware that Zimmer (KZ. XXX 224 sq.) has also made an explanation of this passive from the standpoint of a "3. plur. act. konjunkt Flexion auf *-ur* (**dicur*), von deren unpersönlichem Gebrauche die ganze Passivbildung ausgegangen sei" (Stolz², p. 361, Anm.). On the impersonal origin of the passive I refer also to my suggestion in A. J. P. XV, p. 221; and I cite here in addition from the first draft of this essay: "The middle of both Greek and Sanskrit verbs is also used as a pass. This I trace to the upgrowth of these forms from infinitives where the distinction of act. and pass. is obliterated. We find in the following Sk. sentence an explanation of the entire construction of so-called attraction with the infin. (Lat. gerundive): *ahdm rudrāya dhādnur ā tanomi brahmadviṣe śdrave hāntavāi u* (RV. X 125, 6) 'I stretch for Rudra the bow for his enemy, for the arrow and for slaying.' These are all dats. of purpose in a sense: it does not signify that we call *rudrāya* a dat. of advantage, or of ind. obj., *brahmadviṣe* a dat. of disadvantage, *śdrave* a dat. of agent, and *hāntavāi* a dat. of purpose. The stretching of the bow fulfils a purpose for each of these objects. If we omit *śdrave* we may feel *brahmadviṣe hāntavāi* as a pass., 'in order that his enemy may be slain,' or as an act., 'for him to slay his enemy.' It was this double act.-pass. potentiality that the impv.-infin. forms **dhyāi* \parallel **dhai* took into the new emphatic mood.

² I was in error in attributing this semasy for *two* to Benfey (Part I, p. 430) so far as I know, it is a new suggestion.

³ We need hardly doubt that the primitive Aryan was capable, like the Hindu (cf. Wh.² 24 a), of confusing *r* and *ri*.

also compare Eng. *fin* and *span* ('hand-stretch') : $\sqrt{s} > \text{pen}$ 'stretch' (cf. Brug., Gr. II, p. 136, Anm.), and possibly Lat. *penes*, for which a very convenient translation is 'in the hands of.' As to *six*, we have strong traces of a duodecimal system in Lat. *sescenties* 'six hundred' used as an indefinite number. If the *F* of $\sigma > F\acute{\epsilon}\xi$ (Aryan $s^w ak\check{s}$, cf. Pedersen, I. F. V 86) is parasitic (cf. the author, Proc. A. P. A. 1894, p. ix), I suggest that we have in Lat. *sex* a congener of *sequor*, which meant 'following,' the next number to 'five.' In *septem* we have perhaps an indirect extension of *sex*.¹ For the estimation of $\delta\kappa\tau\acute{\omega}$ we must consider $\delta\gamma\delta\sigma\sigma$ 'eighth.' I would see here in general a dual, as Fick does, but back of $*\acute{o}k\tau\acute{a}u$ a more primitive $*ok + dv\acute{a}u$, with an actual 'two' for the suffix. In the cardinals the previous $\acute{\epsilon}\pi\tau\acute{\alpha}$ has affected it, but in the ordinals $\delta\gamma\delta\sigma\sigma$ represents the more primitive condition, while $\acute{\epsilon}\beta\delta\sigma\mu\omicron\varsigma$ has been assimilated to $\delta\gamma\delta\sigma\sigma$. For 'nine' and 'ten' I have nothing to add to the current view that $\acute{\epsilon}\nu\nu\acute{\epsilon}\alpha$ possibly means 'one new one' (as an addition to eight), and that $\delta\acute{\epsilon}\kappa\alpha$ is connected with Aryan $d\acute{\acute{e}}k || d\check{i}k$ (supra, p. 5) and means 'receive with both hands.'

THE EMBRYOGENY OF ROOTS.—The agglutinative processes employed in an analysis of the inflexions bring us close to the embryogeny of the root. Thus $\sqrt{dh\bar{e}}$ has been explained as after all but a demonstrative, and it has been further assumed that many so-called roots in $-k$ may contain, after all, a shorter root $+ke$. Thus Lat. *facio*, which goes back to $\sqrt{dh\bar{e}}$, has become in turn, to all intents and purposes, \sqrt{fac} . A demonstrative lies also, as I shall seek to prove, back of the substantive verb $\sqrt{es-}$, which indeed is to be explained as $\sqrt{e-s-}$. The Aryan 2d sg. is $*e-si$, not $*es-si$. In Latin $e-s$ we have doubtless the earliest form ($<es$), before the $-v$ -endings (Part I, p. 423) were developed. The various etymologies that have been proposed for the copulative assumed for it a weakened meaning out of something primitively more definite. In Hebrew the copulative verb is an adverb of a demonstrative value with verb-endings.²

¹ I note the English phrase 'at sixes and sevens.' Compare also the Lat. indefinite *sex septem* 'six or seven' (Hor. Ep. I 1, 58 and Ter. Eun. 332). Phonetically the relation of *sex* and *septem* cannot be bridged from our present standpoint, for we can hardly assume completed labialization of a 'velar' in the primitive period. I note, however, that Hillebrandt has made precisely this suggestion for Sanskrit phonology (BB. XIX 244-6).

² In Sanskrit the pronoun *ayám* is also used as a predicate without a verb (cf. Grassmann, Wort., s. v. *idm*).

Any negro in the South verifies this condition, for his '*dar he*' means 'there he is.' Another element in the copulative verb is $\sqrt{s}tha$, which is, after all, probably only an enlargement of the demonstrative *sta*¹ which, as I have suggested above, is represented in the 2d pers. *-stha*. In Sk. *stha-s* 'you two are' we have a pluralization of 2d sg. (subsequently 2d plural) *stha-*. Aryan 3d sg. **esti* contains the root '*e*' plus this same *-st*. There was a parallel form **eti* (Sk. *áti*, Grk. *ἔτι*,² Lat. *et*) which was crowded out by **e-sti*. The semasiotic connection is sufficiently indicated by the term 'copulative' applied to Lat. *est* and to *et*. In Lat. *sum* for *s-om* 'this me' we are to see an earlier form than in Sk. *a-sm-i*. From the 2d sg. **e-si* the *e* worked, doubtless, first to *st'* (3d sg.) and thence to the 1st sg. Here it stopped in Sk., but in Grk. the *e-* was carried into the dual and plural also. Greek has forms that are entirely free from the *-s-*, e. g. *εἰσί*, Dor. *ἐντί*. But Greek also preserves a form *ἐ-ν*, e. g. in λ 414 *περὶ δ' ἄλλοι ἐταῖροι | νωλεμέως κτείνοντο σύες ὡς ἀργιόδοντες | οἷ ῥα τ' ἐν ἀφνειοῦ ἀνδρὸς μέγα δυναμένοιο*, etc. Here *ἐ-ν* means 'belong to' and is not a preposition. Autenrieth, s. v. *ἐν*, specially notes that *ἐστί*, *εἰσί*, *ἦν* are often to be 'supplied' with it. For cases of *ἐ-ν* in the sg. I refer to ι 134-6 *ἐν δ' ἄροσις λείη . . . ἐν δὲ λιμὴν εὖρομος*. Not only was the form *ἐν* in existence, but also *ἔνι*, a pair like Lat. *est* || *ἐστί*. It is well known how *ἔνι* is interpreted as *ἔνεστι* (cf. Autenrieth, s. v. fin., and L. and Sc., s. v. *ἔνεμι* II δ). I cite from ι 126 *οὐδ' ἄνδρες νηῶν ἐνι τέκτονες*. This use of *ἔνι* persisted in Attic. Cf. Plat. Phaed. 77 E *ἀλλ' ἴσως ἐνι τις καὶ ἐν ἡμῖν παῖς*.

When we thus conceive of *ἐ-ν* as a form of the copulative verb, an easier explanation is possible for 3d sg. impf. *ἦν* as a reduplicated *ἐ-ν*. There is no reason, in the nature of things, why the *na*-ending (Part I, p. 432) should have been a plural rather than a sg. Still, we may explain this as a special Greek phenomenon that got its start from the idiom *πάντα ἐστί* = *πάντα εἰσὶ*.

Gothic also bears testimony to the root *e-* in its 1st sg. *i-m*, for it cannot be proved that this stands for **immi*, inasmuch as there is a question whether *-sm-*³ in Gothic gave *mm* (cf. Osthoff, Perf., p. 428, Anm.).

¹ This has been previously suggested by Steintal, as I am informed. In English *st* means clearly 'hush, there he is.'

² Homer also uses the form *ἔτ'* beside *ἔτι*, though we know how averse he was to the elision of *-ι* (cf. Kaegi, Gr. Gram.², §227, 8, Anm.).

³ For this group in pronominal inflexion I think we must recognize a doublet *-sm-* || *-m-*, on the basis of Lith. *támui*, O.Bulg. *tomu*, beside O.Pruss. *s-tesmu*;

In the Greek 2d sg. impf. ἦσθα I would see a syncretism of a 2d sg. **ē-s* plus a 2d sg. *stha* (supra, p. 16). A comparable syncretism is to be seen in Sk. *āsīs*. This I take to represent the 2d sg. *ās* (<Aryan **ēs*) plus a 2d sg. **īs* (<**ēs*, supra, p. 5). There seems to occur no inj. **asīs*, but we are perhaps entitled to infer one from the Lat. fut. *erīs*.¹ The comparison of *āsīs* with Lat. *erās* has been defended at length by Bartholomae (Stud. II, p. 63 sq.), but his *āi* || *ā / ī* series is not convincing (supra, p. 10). I explain *erās* as a feminine verb-form (Part I, p. 438). We may, however, start from *brāvīs*, etc., injunctives, where in the termination *-īs* we may see a dithematic Aryan *-ēs* || *-īs*. To this type may belong Lat. *velīs*.

Combining this explanation of *√e-s* with the theory of the origin of the thematic vowel and vb.-endings (Part I, p. 413), we are able to take a form like Sk. *bharasi* and divide it *bhar-asī*, precisely equivalent to Eng. *thou art bearing*.

Other roots are perhaps also capable of ultimate analysis into demonstratives. Thus in Sk. *bhavasi* we may see *bhó+asī* 'sir! thou art,' which finally became a more emphatic copula 'become.' In *bho* we are to see a call, a monothematic vocative (supra, p. 421) to a stem *bhā*. It is not necessary, however, to reject a belief in an impv. *bha+wa*.

Roots of more pointed meaning may also be derived in the same way. I take for illustration the Lat. impv. *ce-do*. Its first part is infallibly a demonstrative, and we have no right² to separate this *-do* from the impv. ending *-dum* (supra, p. 2). From the mere call 'hither' the sense 'hither with it,' 'bring here,' 'give here' has developed. Now we can apply the same

and Lith. *tami*, O.Bulg. *tomī*, to Sk. *tdsmin*, pronominal dat. and locs. If we bear in mind the frequency of 1st pers. demonstratives (Grk. *ὅδε*, Lat. *hic*, e.g.), it is not going far afield to institute a connection in Sk. between dat. sg. *asmāi* 'to this <me>' and *asmān* 'us.' Even if *asmān* go back to Aryan *us+mans*, an unemphatic + an emphatic pluralization of acc. sg. *ma* (Part I, p. 419), we can assume that *us-mans* was the feeling for the form beside *us-s*, and that from this source the group *-sm-* got into pronominal inflexion. But *-m-* arose in the instrumental as an inflective element (Part I, p. 420). It is this we have in the O.Bulg. instrum. *īēmī* and in the locs. cited for Lith. and Bulg., as well as in their dat.-abl. plural. In the fem. inflective element *-sy-* we are also to see an analogical extension: Sk. gen. sg. *ta-sy-ās* is only a feminine to masc. *ta-sy-a*, and from this source the infection spread.

¹ Cf. *erīs* in Plautus (Trin. 971; cf. Brix, Einleit.⁴, p. 20).

² I have anticipated objections to this statement above, p. 2, f. n. 3; p. 16.

semasy to *bhara*, Grk. *φέρε*: it was a call to a person, a vigorous 'you there!', which afterwards shifted to the sense 'bring here.' I especially note the post-Homeric adverbial *φέρε* 'come, well.' In Sanskrit, Greek and Latin the emphatic inflexion ('mid.' or 'pass.') means 'move rapidly.' While this sense is explicable from reflexive or passive collocations, it may derive along the lines of the interjection *φέρε*. I note that *δεῦρο* (supra, p. 3) in Homer connotes haste.

But *cedo* also means 'tell,' and thus vouches for the semasic development of the Aryan call (impv.) **sekwe* 'there you!'. This means 'say' in Grk. *ἔν-νεπε*, 'follow' in *ἔπομαι*, and 'see' in Ger. *sehen*. In English, per contra, the impv. 'say,' or 'say there!', comes to about the same thing as 'you there!', being a summons to attract the attention of a second person.

The Sk. root *skṛ* || *kṛ* 'do, make,' with impv. *kara*, is made up, like *ce-do*, of two demonstratives *kā*+*ra*. Its semasy is similar to that of *√dhē* (supra, p. 2). A certain interest attaches to the form *akat* (ÇB.; cf. Wh., Vb.-Roots, s. v. *kṛ*), which seems to be without the *-r*.

The same elements may be reversed. Thus, beside Lat. *ce-do* 'give' we have Greek *δέ-κο-μαι* 'receive,' while Lat. *doceo* 'show' is like *cedo* 'tell' in meaning, and Ionic *δέκνυμι* 'show'¹ tells the same story.

I turn to note some roots of equivalent meaning where the final demonstratives differ. I have shown above, p. 13, how Sk. *dhū* 'run' is a by-form of *√dhē* || *dhī*. There are besides in Sanskrit *dhāva-ti*² 'run,' which may be from *dhā*+*va*, *dhava-te* 'flow,' from *dhā*+*va*, *dhanā-yan* 'run,' from *dhā*+*na*, and *dhānva-ti* 'run,' from *dhā*+*nva*. Beside these we must set Grk. *θρώσκω* 'leap,' which implies a root **dher* 'run.'³ Recalling the demonstrative

¹ Of extreme interest is the relation of *δέκνυμι* to this form. I note that *δέκνυμαι* 'greet' is compared with Sk. *dāgnati*, as to which Prellwitz (Etym. Wört., s. v. *δέκνυμαι*) says: "εἰ neben ε steht für altes ē, oder ε ist nur metrisch gedeht." My own explanation of the vocalism is given above, p. 6. Now *δέκνυμι* may be explained in the same way, and to meet the case of Lat. *dicō* we must write the Aryan root as *dēk* || *dīk*.

² Of interest is the second *√dhāv* 'rinse,' used in composition only with *ā*- and *nī*-. Its relation to *√dhē* is like that of Lat. *in-ficio* 'dye.' We need not interpret the *-v* as being any more a part of the root than the *-c* in the Latin word.

³ Cf. Dunn in Class. Rev. VIII, p. 95. Here Sk. *dhārdyati* 'cause to run, urge on' is cited, but I cannot verify this meaning in the Petersburg dictionaries. I note, however, *dhāra* 'stream' ('run').

doublet *dha* || *da*,¹ we shall not be inclined to separate from this group the roots *dr-am* || *dr-ā* 'run' and *dru* 'run.' We may imagine that back of these lies a stem *da+ra*; *dr-am*² || *dr-ā* are formations like *gam* || *gā*, while *dravati* (: '√ *dru*') stands in the same relation to √ *drā* as *dha-va-ti* to √ *dhā*. In the above forms, even if we limit ourselves to those in *dh°*, we can see the ORIGIN OF THE INTERCHANGE OF *r/n* in verb-roots, which must be entirely parallel to the same phenomenon in noun-inflexion.

Interesting formations under this head are the Sk. roots *vac* and *vad* 'say.' Back of these must lie impvs. **ve-kwe* and **ve-de*, with a meaning something like 'you there!'. The developed meaning 'say' can be understood by our use of 'say' in the sense of 'you there!' (cf. also **se-kwe* above).

Sometimes it is the prior demonstrative that varies. Such a condition obtains in the Sk. roots *dhṛ*, *bhṛ*, *hṛ* (**ghṛ*), whose meanings 'hold', 'bear', 'take' lie very close together. For the two first we are prepared to recognize the demonstratives *dha* (supra, p. 2) and *bha* (supra, p. 21) at once. No demonstrative *gha* is known, unless we are to find it in Sk. *a-hā-m*, the particles *ha*, *hi*, Lat. *h-ī-c*.

For certain reduplicating roots we may reach an even simpler origin, arising from the infant's first unconscious utterances, to which a sense is given by the parents; typical for these is 'papa' || 'appa'; cf. Grk. *πάπα* || *ἄπα*, *ἄτα* || *τάτα* (*τέτα*),³ names of the father. In Hebrew the same utterance is found as *abba*, and this consonantization we have in Lat. *aba-vus* 'grandfather.'

¹ It seems to me that these initials *dh* || *d* must have had a common origin. I suggest that in the Aryan period intervocalic *-d-* was pronounced with the previous syllable, and the following vowel was preceded by the glottal buzz as in German (cf. Vietor, *Germ. Pronunc.*², p. 57). Now *d+* the glottal buzz (*d'*) is, according to Ellis (cited by Clark, *Man. of Ling.*, p. 166), the Hindu pronunciation of the 'aspirate' *dh*. May we not assume that a primitive *da-dū-ti* became *dad'-ā-ti*? Or perhaps the aspirates were sonant spirants, and arose from sonants in intervocalic position, just as in the later Avestan and in Irish this same phenomenon took place. The extension of *d'* or *ḍ* from reduplicated syllables through the whole family of words would not then be a matter for surprise. The passing of all the 'aspirates' in Sk. sporadically into *h* is more easily explicable if their original value was that of spirants. I cite on *dh°* || *d°* Noreen, *Urgerm. Lautlehre*, §51, Anm. 1.

² I note also √ *bhr-am* 'wander,' which is possibly an extension of √ *bhr* 'move rapidly.'

³ This vocalization shows the change of *a* to *ε* due to the consonantal environment (cf. Part I, p. 425).

Note Lat. *ata-vus* beside Grk. *ἄττα*. The same types are found in the word for 'mother'; thus beside *mama* we have Ger. *amme* 'nurse' and Lat. *ami-ta* 'aunt,' while in Sk. *am-ba* 'mother' the *-b-* comes from confusion with *abba*. Now, these utterances were interpreted also as calls for food, as in Lat. *mamma* 'breast,' and *papilla* 'breast,' diminutive to *pappa*, which, according to Nonius (cited in L. and Sh., s. v.) was the infant's word for food, or rather perhaps for drink (cf. *papilla*). The latter form was of wider employment: I note Pl. Epid. 727 novo liberto opus est *quod pappet*, 'something to eat.' If we transfer the same conditions to Aryan we can see a child's *papa* || *baba*, a call for something to drink or eat, back of Lat. *bibere*, Sk. *piḍāmi*, Grk. *πέπωκα*. The word was of course afterwards worked up into a system. Its non-reduplicated kin we find in Lat. *pa-scere* 'feed,' Grk. *πατέομαι* 'eat,' Sk. *√pā* 'protect.' Doubtless *πατήρ* 'father' and Sk. *pa-ti* 'lord' belong here. The whole stock sprang from the loins of Aryan '*papa*.' The earlier linguisticians connected Lat. *māter* 'mother' with *mē-tior*¹ 'measure.' I would fain connect them both with *mama* || *amma*, and *ἀμάω* and *metere* 'reap' as well, for reaping was a primitive feminine employment.

Onomatopoeitic words are of too common origin in our own time for any question to be raised as to their Aryan existence. I call attention to Vedic *√kṣu*, which is a very perfect example, if we can infer from modern to ancient sneezing. Grk. *πρώω* 'spit' is also a very perfect imitation of the act, and I am much inclined to doubt its derivation from *s)pyū-* (cf. Brug., Gr. I, §131). The onomatopoeitic word was sometimes the name of the action, i. e. a noun, sometimes representative of the act, i. e.

¹ For the vocalization I refer to my general theory (Part I, p. 425); but I especially remark that no theory of phonetic law keeps us from re-uniting an Ionic *η* and a Doric *ᾱ* in a primitive Greek *ā*. Now, there must have been a start in the primitive Greek period to this subsequent differentiation, for dialect is ultimately of the individual. So in the Aryan period original *a* and derived *e* may for a time have stood side by side. We may infer from the Sk. interchange of *r* and *l* (Wh.², §53 *b*) that this period was not necessarily a brief one. That adaptation of *a* to one meaning and of *e* to another resulted is a very natural supposition. The problem of individual dialect has been too much neglected. I have known more than one child that could not distinguish *pen* and *pin* in articulation. If we assign such a peculiarity to the mother of a family in a segregative population, it might in a few years affect numerous persons; and if later on a more gregarious habit brought the community closer together, we should have two contemporaneous pronunciations.

a verb.¹ I note the English *caw*, noun and verb: the same *motif* is expanded in Sk. *kāka*, Lat. *corvus*, Grk. *κόραξ* 'crow.'

There was another source of roots in what may be termed 'conventional onomatopoeia,' I mean especially the 'sound-roots.' These are characterized by the 'sonorous' letters *r* (*l*), *n*, *m*. I note cursorily for *r* the Sk. roots where it is initial only, *√raṭ* 'howl,' *√ran* 'ring,' *√rap* 'chatter,' *√rambh* 'roar,' *√ras* 'roar,' *√rā* 'bark,' *√rās* 'roar,' *√rī* 'flow,'² *√riṣh* 'snarl,' *√ribh* 'sing,' *√ru* 'cry,' *√rud* 'weep.' Bloomfield (IF. IV, p. 76) gives a brief list of Aryan sound-roots in *-n*,³ and Persson (Lehre v. d. Wurzelerweiterung u. W.-variation, p. 69) gives a list of such roots in *-m*. The adaptability of these sounds to the formation of such roots lay in their capacity for continuous sonority, with *crescendo* and *decrecendo* effects to suit the 'gustiness' of sounds, as, e. g., of waterfalls or rapids.

I turn, in conclusion, to a brief glance at the deflected grade, i. e. *o* for *e*. Its home is in the verb. I have cast doubt upon its chief noun-occurrences above (Part I, p. 425), and the same explanation by infection is applicable to the *-ter/-tor-* and *-en/-on-*variations in nominal suffixes. It was the view of Grimm that *-oi-*, say, for *-ei-* had a semasic and not a phonetic origin. Extant accentual facts do not warrant us in explaining *-oi-* as 'post-accentual' (Part I, p. 414).⁴ Possibly some acci-

¹ I refer to Mod. Lang. Notes, IX, col. 270, where I have found in the implosive 'click' sound of the tongue the *motif* lying back of the Aryan words for *tongue* and *lick*.

² I note RV. X 53, 8 *dṛmanvatī riyate* 'Stony-brook flows <noisily>.' Dean Byrn called attention in his 'Principles of the Structure of Language' to the occurrence of *-r-* in words for water.

³ In a footnote on this passage Prof. Bloomfield notes the Sk. doublet *√svar* || *svan* 'sound,' and he suggests the parallelism of **swen* || *sver* 'sun, light.' "Sound and light! The especial adaptiveness of the sound category is therefore perhaps not far removed psychologically from that of light, times and seasons." Language testifies very clearly to this in English 'loud' of colors, and we hear from many sides that trumpet-tones are 'red.' It is curious to note the Sk. 'color-roots' with initial *r*: *√raj* 'color,' *√ru-c* 'shine,' and *rudhird* 'red.' After all, the psychology may be as simple as the transfer of strong epithets from the objects of one sense to another: I note the phrase 'a howling swell.' Involved in this semasy is *√rāj* 'rule': compare *βοῶν ἀγαθός* 'good at a shout,' an epithet of a great warrior.

⁴ Compare my readjustment of the accentual conditions in A. J. P. XIII, p. 479, but, after all, it is a readjustment. I note that Streitberg, following Kretschmer, regards the *o/e*-variation as not an accentual phenomenon (cf. IF. I, p. 90, footnote).

dental association started the type. As to this I make the following suggestion: just as Sk. *diçáte* 'he points,' Grk. *δείκνυμι* || *δείκνυμι* are referable to a root *děk* || *džk* (supra, p. 22), so we might unite Sk. *vadati* 'he speaks' with Lat. *videre*, Grk. *εἶδον* 'see' with a root *věd* || *vid*, back of which lies a demonstrative *ve+de* 'you there!' interpreted as 'look' or 'say.'¹ We may suppose that beside this was a *voi-da*, a still more passionate 'you there!', interpreted as 'look out'; even more acute was *voi+st'(a)*, with a last element like our English *hist!*² When this complex was definitely understood as a call to the attention, an impv. *void+dhi* came into being, subsequently developed under accental influence to **viddhī*; cf. Sk. *viddhī*, Grk. *ἴσθι*. In Sk. *viddhī* still means 'look out,' and Homer uses *ἰδέ* in this sense, while in tragedy *ἰδοῦ* means 'lo!' or even 'hist!'. When **viddhī* was established as impv. 2d pers., then *voi+st'(a?)* was treated as 2d indic. and *voi+da* adapted to the other persons. The passage of meaning from 'see' to 'know' lies through 'understand,' or a parenthetical 'I see,' and so *οἶδα* is used in Greek (cf. L. and Sc., s. v. **εἶδω* B. 7).³

The next step was the re-interpretation of the parenthetic 'I see,' i. e. 'perceive, understand, know,' as 'I have seen, perceived.' Thus the forms in **void^o* became associated with the **vėd-* || *vėd-* forms as 'perfects,' or 'intensives.' In Greek and Sanskrit intensive reduplication fell in to share in the creation of the new type, in Latin reduplication was seized on as the most characteristic thing, and in Gothic the vowel-change alone in the large majority of verbs.

It is venturesome, I am aware, to charge the whole 'perfect'-formation to a single association, as I have done. But, after all, the Greek *-κα*-perfects, and possibly the Latin *-ui⁴*-perfects, are

¹ For this association of meaning I again bring in evidence Germ. *sehen* and Grk. *εἵνπετε* (supra, p. 22).

² Note Lat. *i)ste*, 2d and 3d pers.

³ This use nearly comes up for *οἶσθα* in Homer (cf. A 365, ρ 573), but typical for Homer is O 204 *οἶσθ' ὥς πρῆσβυτέρουσιν ἐρινύες αἰὲν ἔπονται*, and very frequently 'lo! how' would render the meaning perfectly well.

⁴ This is a compromise type: Lat. *dedi* is a pf. middle = Sk. *dadd* (pr. or pf.). Latin may have had a form **dedau* = Sk. pf. *dadāu* (Part I, p. 429). The compromise would be **dedāvi*. This we have perhaps in *mandāvi* 'I have enjoined' (< **māndā-dāvi*). We need not operate with reduplicated forms, for we have the Umbrian form *subocau* = Lat. **subvocaui*. For the spelling *subocauu*, Bréal's explanation (T. E. 70) as *°aurw* represents precisely our English

types that must have proceeded from a like small beginning. The twelve Gothic preterit-presents never strayed far from *wait* 'I know' in meaning, being all an easy remove from 'know, know how, can.'¹

Here I bring to an end these speculations as to the origin of roots and inflexions. Prehistoric and teleological problems are perhaps alike as to their insolubility, still a degree of certainty *is* reached for late Aryan forms by the comparative method. The elements of noun- and verb-inflexion have been delimited and seen to partly coincide. By the assumption of primitive paratactic sentences I have sought to identify these coincident elements. This method has long been employed in the study of syntax, e. g. in the construction after verbs of fearing in Latin. From incompletely formed verbs like Grk. *δεῦρο*, plur. *δεῦτε*, '<come> hither,' Lat. *cedo*, plur. *cette*, 'hither' (>'bring here'), 'out with it' (>'say'), beside modern locutions, I have sought to lift the veil on the embryogeny of roots. The proper point of view for this task was given long ago by Lucretius:

At varios linguae sonitus natura subegit
Mittere, et utilitas expressit nomina rerum,
Non alia longe ratione atque ipsa videtur
Protrahere ad gestum pueros infantia linguae,
Cum facit ut digito quae sint praesentia monstrent.

—De Rerum Nat. V 1026–30.

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pronunciation of *-ow*. We may then explain Lat. *vocāvi* as **vocāu* affected by *dedī*. In *monui* of the 2d decl. we must see **mónē-vi*. The exceptions in *-ēvi* are all dissyllables save *delēvi*, which was probably felt as a compound, and *adolēvi*, a quadrisyllable, and so not affected by the accent.

¹ It is because I look upon this verb as ultimately the starting-point of the preterit inflexion that I believe we have in 2d sg. *waist* an original and not an analogical form (supra, p. 16).